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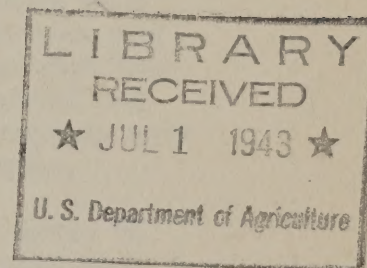
A  
SUGGESTED ACTIVITIES

ON

RURAL ELECTRIFICATION THROUGH COOPERATIVE ACTION

FOR

BOYS' AND GIRLS' GROUPS



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SUGGESTED ACTIVITIES ON RURAL ELECTRIFICATION FOR BOYS' AND GIRLS' GROUPS

## Preface

The activities as outlined are developed to serve as a guide for boys and girls in an understanding of applying rural electrification in their homes and on their farms.

It may be used as a whole, or any one part may be used if only one or two units are chosen. Each unit attempts to provide a completed action on the part of the club member. Time will not permit intensive work in this interesting field, nor is it intended that the boys and girls become trained technicians, but that they develop a basic understanding of a few electrical and cooperative principles in order to make electricity more useful to them in their homes and on their farms.

The suggestions are designed to aid the group to learn some of the ways in which electricity will provide means of doing jobs of work, on the farm, that will pay for themselves. The measurable results developed through the activity and experience with the club members will give a workable appreciation of electricity and cooperation to help make living in the country modern, comfortable and more profitable.





SUGGESTED ACTIVITIES ON RURAL ELECTRIFICATION FOR BOYS' AND GIRLS' GROUPS

1. Preface
2. Introduction
  - a. Cooperative Activity
  - b. Electricity and Familiar Terms
3. Good Lighting for the Farm and Home
  - a. A Study of Light, Lamps and Adapters Applicable to Home and Room Improvement (Demonstration)
  - b. A Choice of Making a Study Lamp or a Yard Light
  - c. To Learn Why Good House Wiring is Important
4. Small Motors on the Farm and in the Home (Demonstration)
  - a. How to Apply a Small Motor to the Sewing Machine
  - b. Use of the Electric Mixer
  - c. How to Make a Small Motor Portable
  - d. How to Apply the Small Motor to a Machine (The Flour Mill)
5. Food Conservation with the Use of Electricity (Demonstration)
  - a. Garden Watering -- Make-It-Yourself Sprinkler
  - b. The Hot Plate for Canning
  - c. The Roaster -- Cooking Complete Meals
  - d. Small Mills and Grinders
  - e. Electric Refrigeration (Home Study)
6. The Electric Brooder (Demonstration)
  - a. Make-It-Yourself Brooder
7. Safety Practices





## COOPERATIVE ACTION

### Activity -- Principles and Practice of Cooperation

A co-op is a business which belongs to the people who use it. When a group of farm people are in need of a particular service which is not available, they can get together and organize their own co-op business to serve themselves.

This is what many farmers have done who could not get electricity by just waiting for a power company to get service to them. They organized their own electric co-ops, with the help of REA, and are now serving themselves with electricity on a cooperative, non-profit basis.

There are many other kinds of co-ops which farmers can and have set up in order to take care of their needs. It is therefore important for farm youth, who are the farmers and farm women of tomorrow, to learn about cooperation and how co-ops can benefit farm people. A study of the REA booklet, "A Guide for Members of REA Cooperatives," will help you in discussing the following topics:

#### A. Cooperative Principles.

There are seven principles or basic rules which co-ops all over the world have found it wise to stick to. They are:

1. Open membership.
2. Democratic control, or one member, one vote.
3. Invested capital gets no profits, only interest.
4. Return of gains to the members in proportion to their patronage.
5. Political, religious, and racial neutrality.
6. Cash trading, no credit business.
7. Education in cooperation.

Discuss these principles, one by one, to find out what they mean and why co-ops have adopted them. How do these principles apply to REA co-ops?





B. Types of Co-ops.

There are over 15,000 farmers' co-ops in the U.S.A. Some are organized to market their members' products, others to buy farm supplies for their members, and still others to provide special services for their members, such as cold storage, insurance, telephone service, electric service, etc. See how many different kinds of co-ops you can name. What kinds of co-ops do you think would be helpful to farm people in your own rural community?

C. Co-op Organization.

A co-op is owned and controlled jointly by its members who use its services. The members elect the directors, who must themselves be members. The board of directors is entrusted by the members with responsibility for the management of the co-op. The board employs the manager, who does the actual managing, and hires other employees as approved by the board. The manager is responsible to the board, and the board is responsible to the membership.

The rights and duties of the members, of the directors, and of the officers are stated in the bylaws of the co-op. They also contain many other rules which are important for members to know. Therefore, every member of a co-op should get and study its bylaws.

Discuss the things which members should know about their co-op, and what they can do to make it a success and to get the greatest benefit from it.

D. Group Action for Club Members.

While club members may have to wait a few years before they can become members of a regular co-op, they can begin now to practice cooperation by:

1. Joining together in planning and constructing any one of the projects that the Club Group selects to make.
2. Purchasing as a group the materials required. By purchasing in larger quantities, the cost is usually less.
3. Each Club Group dividing into team committees for





separating the work as:

- a. One to get the materials together.
- b. One for setting up the tools and preparing the materials for assembly.
- c. One to assemble the materials into a finished article.
- d. One to investigate the prices of factory-made equipment and to figure out the money saving in "making it yourself."

E. Selecting the Project.

May we have two volunteers, one boy and one girl, who will serve as chairmen for taking down the names of those who wish to work particularly on the following subjects: (Work over the list on this chart carefully and decide for yourself which team committee you would prefer working with.)

- |  |   |
|--|---|
| 1. Good lighting                           | 5. Plan for garden watering               |
| a. Study lamp                              | 6. Use of the hot plate                   |
| b. Yard light                              | 7. The roaster                            |
| 2. Ways to make money by using electricity | 8. Electric brooders                      |
| 3. Special wiring problems                 | 9. Refrigeration in the home (home study) |
| 4. Small motors                            | 10. Others                                |
| a. On the farm                             |   |
| b. In the home                             |   |





## ELECTRICITY AND ELECTRICAL TERMS WHICH FARM PEOPLE SHOULD KNOW

### Activity -- Study of Electrical Terms

The four things always to remember about electricity are that it produces Light, Power, Heat and Cold. When it is once correctly and safely installed and put to use it will:

1. Do much of the hard work on the farm and in the home.
2. Increase farm and home profits.
3. Add convenience and efficiency in the farm and home operations.
4. Make living in the country modern, comfortable, and satisfactory.
5. Increase safety and eliminate fire hazards on the farm and in the home.

It is not known exactly what electricity is but it is known that under given circumstances it will behave in exactly the same way at all times. It is carried through a wire or conductor but is neither a gas nor a fluid. Copper and aluminum are good conductors.

There are some laws which control the action and behavior of electricity and when applied will be helpful in a better understanding of ways of using it.

1. Theory of Electrons - is the theory that all substances are made up of positive and negative charges of electricity which are so balanced that in their natural state they neutralize each other. The theory goes a step further in that in some instances the electrons or negative charges are loosely held and can be shifted from atom to atom. This movement is similar to the flow of water in a pipe and is called an electric current.
2. Electric Current - There are two kinds of electric current or two ways which it may flow through the conductor or wire.
  - a. Direct current flows in one direction all of the time -- a good example is that produced by the automobile generator or batteries.
  - b. Alternating current flows alternately in one direction and then in the opposite direction over the conductor -- a good example of alternating current is the electricity brought to the farm from distribution lines.





3. Ampere - is the unit for measuring the rate at which electricity flows through the conductor. Abbreviated: AMP.
4. Volt - is the unit of measurement for the electrical pressure which causes current to flow.
5. Watt - is the unit of measurement of power or the rate of work done by electricity. The formula for finding this rate is: Rate of flow x pressure = rate of work done, or volts x amperes = watts.
6. Kilowatt - 1000 watts equal a kilowatt (KW). It equals about 1-1/3 horsepower.
7. Kilowatt Hour - is a kilowatt used one hour (KWH).
8. Entrance Switch - a wiring device used for the purpose of breaking a connection between the farm wiring system and the wires leading from the power system's source of current is known as an entrance switch.
9. Circuit - a complete path of wires through which energy may flow to and from an electric lamp, motor or appliance.
10. Branch Circuit - a section of the wiring system separately fused but connected to the main circuit.
11. Closed Circuit - a circuit in which the path for the flow of electricity is complete, thus allowing electricity to flow. It is also called a "hot" or "live" circuit.
12. Open Circuit - a circuit in which the path for the flow of electricity is broken by a switch, a removed or burned-out fuse, or a tripped circuit breaker.
13. "Short" Circuit - when two or more electric wires contact improperly, resulting in a very large current flow sufficient to trip the breaker or burn out a fuse.
14. Ground - a safety precaution which is an electrically tight connection to moist earth is a "ground." It takes care of overflow current and short circuits that may develop in equipment.
15. Automatic Circuit Breaker - performs a protective function and in many cases is used as a switch. When the circuit switch is tripped by an overload or a "short," the circuits are disconnected.





16. Fuse - is a protective device made of a strip of soft wire or metal in a container which is placed in an electric circuit to limit the amount of current in the circuit. When an overload or "short" occurs the soft metal in the fuse melts or burns and disconnects the circuit.
17. Switch - a switch is used to start and stop the flow of electric current in a circuit.
18. Outlet - The point on a wiring system from which current may be taken to supply lamps, fixtures and current-consuming appliances is an outlet.
19. Power Outlet - A connection for equipment which is rated high in watts, such as ranges, water heaters, and large motors.
20. National Electrical Code - is that part of the code of standards of the National Board of Fire Underwriters which deals with electrical wiring and equipment. The code sets up safe minimum standards to safeguard persons and property against electrical hazards.



# ELECTRICAL USES

Activity -- To Learn About Some of the Uses of Electricity:

1. Make a summary of the Present Uses of Electricity on the Farm and in the Home.
2. Make a summary for some Future Uses of Electricity on the Farm and in the Home.

## IN THE HOME AND ON THE FARM

## ELECTRICAL USES FOR MAKING MONEY

Appliances & Equipment	In Use Now	Future Use	Est. Cost of Operation	Appliance & Equipment	In Use Now	Future Use	Est. Cost	Est. Profit
Lights				Lights				
Radio				Poultry				
Iron				Pigs				
Refrigerator				Yard Light				
Washing Machine				Pump				
Electric Pumps				Garden Watering				
Coffee Maker				Poultry "				
Toaster				Livestock "				
Fan				Refrigeration				
Range				Food to Sell				
Roaster				Brooding				
Hot Plate				Chicks				
Food Mixer				Canning				
Sewing Machine				Food to Sell				





Appliances & Equipment	In Use Now	Future Use	Est. Cost of Operation	Appliance & Equipment	In Use Now	Future Use	Est. Cost	Est. Profit
Waffle Baker?				Hot Plate -				
Heating Pad				Electric Pressure Cooker				
Clock				Range				
Electric Cleaner				Sewing Machine				
Water Heater				Washing Machine				
Barn Lights				Ironing				
Poultry House				Electric Motor				
Other Lights				Grinding Feed				
Motor				Sawing Wood				
Feed Grinder				Pig Brooding				
Milk Cooler				Cooling Milk				
Churn				Others				
Cream Separator								
Chick Brooder								
Wood saw								
Pig Brooder								
				<u>PROBLEM</u>				
				For checking the list on the estimated operating cost, use "A Guide for Members of REA Cooperatives," pages 35 and 36. After checking the lists, select one or two of the <u>USES</u> for making money with electricity for further study and investigation. Tell briefly what you would like to do with this <u>USE</u> on your own farm or home.				





## IT'S FUN TO HAVE GOOD LIGHT FOR THE HOME

### Activity -- The Importance of Lighting.

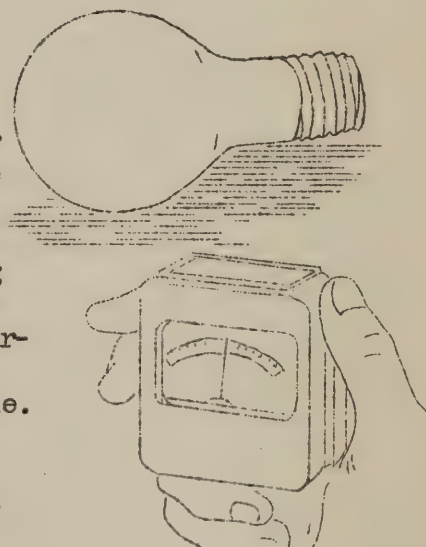
A. Have you ever thought about all of the things that lights do for us in the home and on the farm? Perhaps you have never thought of it, but there has never been a day in your life when you did not use light in many forms. It makes no difference what you are doing -- dressing, eating, reading, working, riding in the automobile, going to school or enjoying some kind of play -- light enters into the activity. Naturally it is desirable that we discuss first, Lights to see by, and second, ways of making money with Lights.

1. The most important purpose of light is to provide our eyes with enough, proper, and comfortable light.
2. There are many facts already known about good lighting, and as the hard work of finding out about light and how to use it has been done for us, all we need to do is to take advantage of the opportunity to learn in a few minutes what these facts are and how and where to use them in the home and on the farm.

### B. Facts to Learn about Light

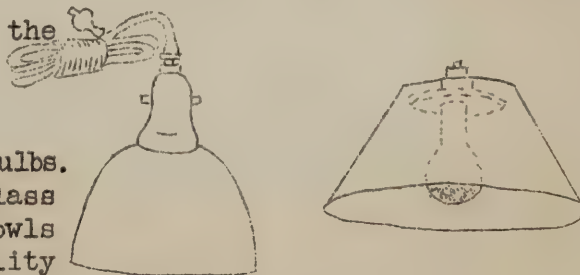
#### 1. The Right Amount of Light

- a. Have enough light for good seeing. "Enough light" depends upon whether one is studying or listening to the radio.
- b. There is now a device for measuring light -- the Sight Meter. It is as accurate as a thermometer is in measuring degrees of heat. The unit of measure for light is the foot-candle.
- c. The right size bulbs are the means for getting enough light. The eyes work easiest under abundant lighting of the correct kind.



#### 2. The Right Quality of Light

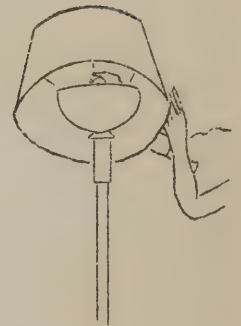
- a. A soft, pleasing light is the kind needed for good seeing.
- b. Avoid glare - shade all bulbs. Use shades, plastic or glass adapters and diffusing bowls to provide the right quality of light.





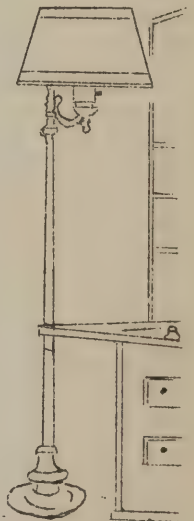
### 3. The Right Location for Light

- a. Have lights in enough places to avoid dark spots in the room, to prevent eyestrain.
- b. Use open-top diffusing bowls, modern ceiling fixtures or lamps in different parts of the room as a means of preventing contrasts.
- c. Light-colored ceilings and lamp shades -- light in color on the inside -- help provide evenness of light.



### 4. The Correct Direction of Light May Be Added

- a. General light should come from above and from the left.
- b. When doing close work place the floor lamp a bit back of the chair.
- c. For writing place the lamp to the left.
- d. Avoid shadows caused by the hands or body.



## C. Over-all Lighting for the Home

### 1. Fixtures

There are two ways of getting light in the home:

- a. Natural lights from windows and doors
- b. Artificial light-- from fixtures and portable lamps.
- c. In order to get the amount and kind of light needed, ceiling fixtures are usually used to produce general light for conversation and moving about in the room.





- d. Portable lamps are used to produce light for the different kinds of work to be done.
- e. Lights may also be used for making the house more attractive.

## 2. Lamps

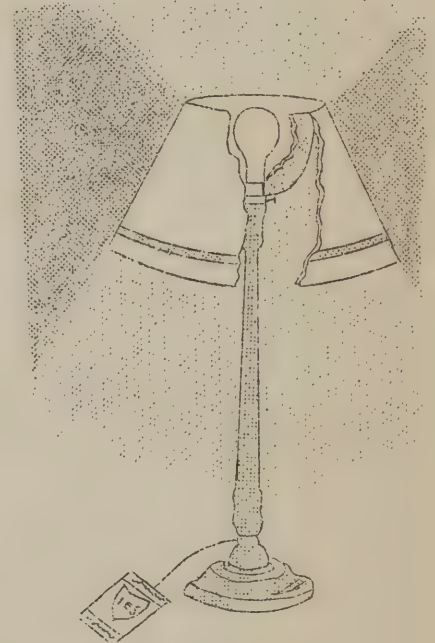
There is a lamp, the I.E.S. lamp, which is especially built to make seeing easy and comfortable.

- a. It is high enough to give a satisfactory spread of light.

- b. The shade is scientifically proportioned and shaped and lined with a white or very light material which reflects most all of the light.

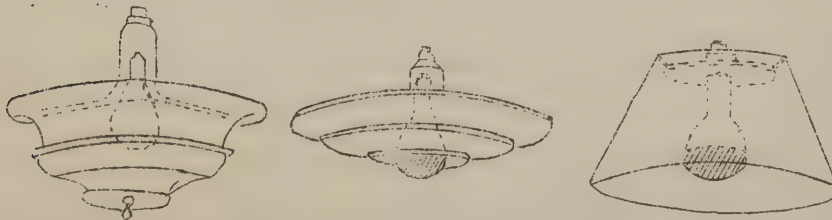
- c. A strong bulb is concealed in a bowl or reflector, which diffuses or divides the amount of light; a part reaches the reading and writing surface, a part hits the ceiling and reflects a safe, pleasing glow over the room.

- d. The letters I.E.S. mean Illuminating Engineering Society. The label insures that we are purchasing the best possible type lamp to study by.



## 3. Adapters-- For Shading Bare Bulbs

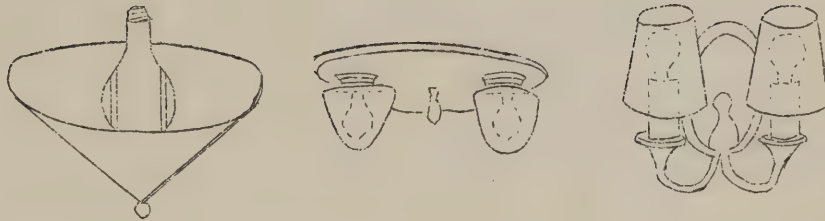
- a. Old fixtures and lamps may be remodeled effectively and at a low cost, by shades, inverted cones and plastic bowls.



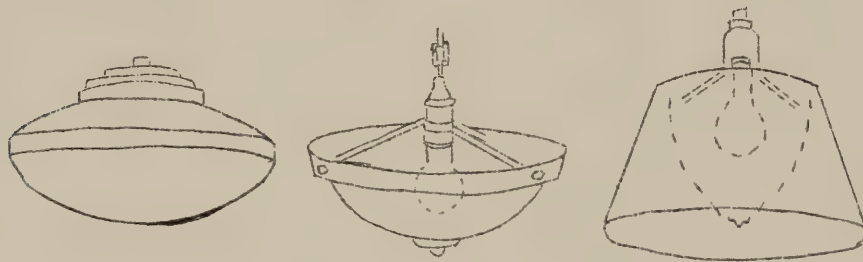
- b. Bare bulbs and fixtures may be covered with shades to prevent glare and diffuse the light.







- c. Units of glass, metal and plastic may be used on single-socket ceiling fixtures.



- d. A floor or table lamp may be improved by replacing the old socket with an adapter socket and diffusing bowl and using a good shade lined with white.

- e. Light conditioning provides beauty and charm in the home.

- f. A well-lighted house provides safety from accidents.

#### D. Cost of Lighting

Did you know that the value of good lighting could not be measured in dollars and cents?

1. The protection from eyestrain, and unnecessary fatigue given from good lighting is invaluable.
2. Usually, the difference in cost between good and poor lighting is much less than people think.
3. The cost is determined by the rate paid per KWH for electricity and length of time the lights are used. The wattage of the bulbs x the number of hours in operation  $\div$  1000 = KWH consumed x the rate = cost of operation.



E. Fluorescent Lighting

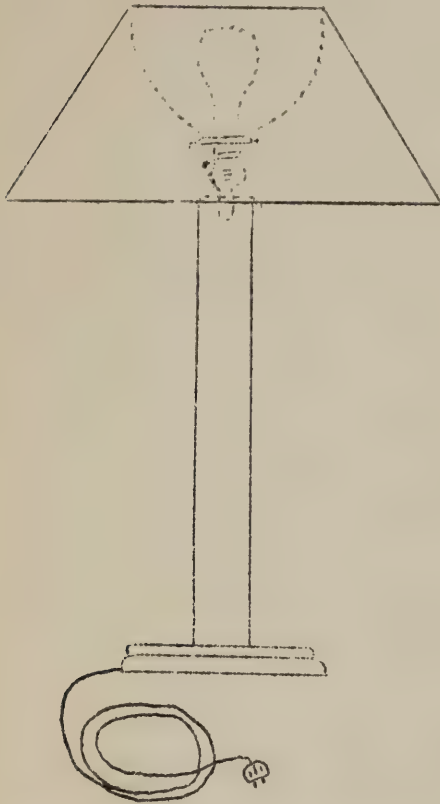
There is a new type of lighting known as fluorescent which many people are beginning to use for light in the home. These lamps do not produce much glare, which is a desirable feature for good seeing. It gives a light similar to daylight and supplies the "coolest" foot-candles ever made from an artificial light source. A special socket and a controlling device known as an auxiliary are required for this unit.





## GOOD LIGHTING

### Activity -- Homemade Table Lamp



A. A good electric lamp will:

1. Make seeing easy and comfortable.
2. Help to conserve eyesight.
3. Aid in good health.
4. Save time and energy.
5. Help to beautify the room.
6. Lessen fire danger.
7. Help prevent accidents caused by poor light.

### B. Bill of Materials

#### Lumber

Cost  
Local Prices

- 2 - 1"x2"x18" (from 1 - 1"x2"x36") for lamp post. .
- 2 - 3/4"x8"x8" (from 1 - 3/4"x8"x16") for lamp base

#### Accessories

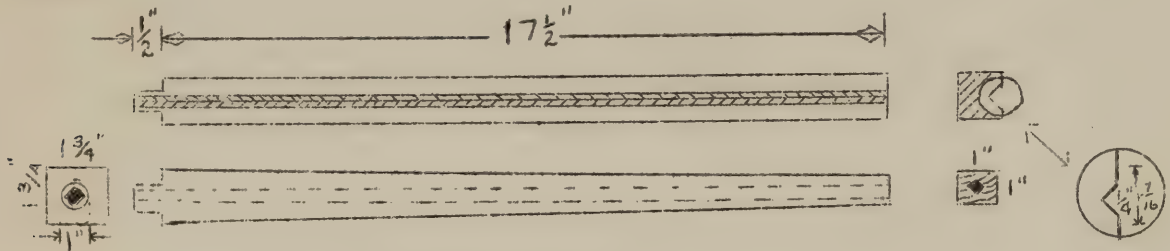
- \* 1 - Push through switch lamp socket . . . . .
- 1 - Socket Cap (threaded for 1/8" pipe) . . . . .
- 1 - 1/8" pipe nipple 1" or 1-1/2" long. . . . .
- 1 - Shade holder (supports diffusing bowl). . . . .
- 1 - Diffusing bowl 8" diameter for 100-W bulb . . . . .
- 1 - Shade . . . . .
- 1 - Bulb - 100-W Mazda. . . . .
- 1 - Appliance Cord 9' (not smaller than No. 18 AWG conductor) . . . . .
- 1 - Appliance cord plug . . . . .
- 2 - No. 10 2" Wood screws. . . . .





\* If a three-way switch is desired so a double filament bulb can be used, a converter socket with a mogul twist switch should be obtained. This converter should have a  $\frac{1}{4}$ " female thread at the bottom so a  $\frac{1}{8}$ " pipe nipple can be used to attach the converter to the lamp post.

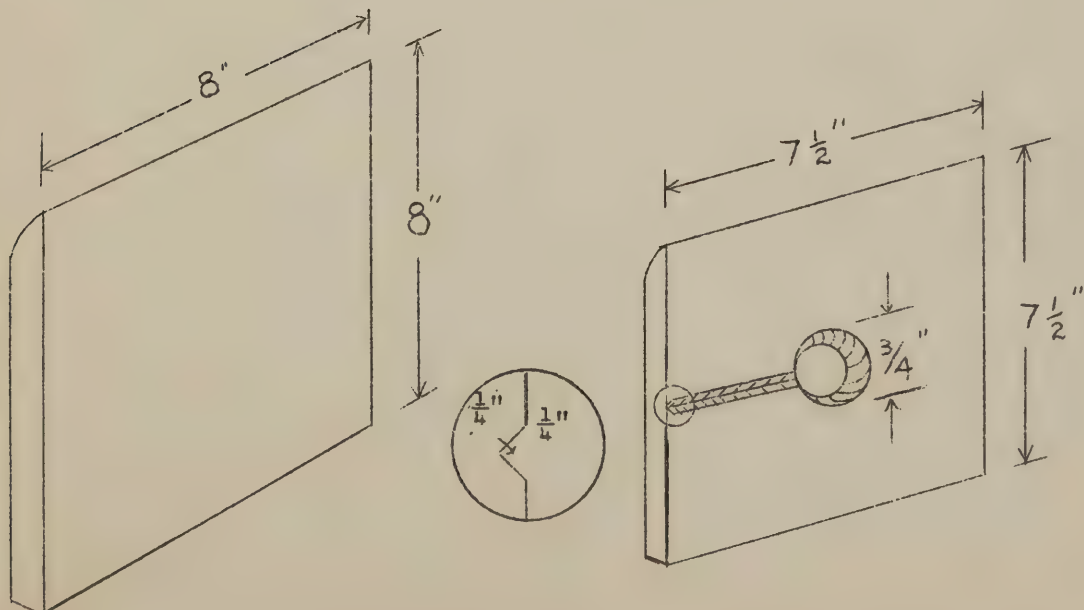
### C. Post



The post is made of two pieces 1" x 2" x 18" glued together.

1. Before glueing, cut a V-groove  $\frac{7}{16}$ " wide and  $\frac{1}{4}$ " deep the length of each piece, then glue the pieces together so the grooves match to form a square hole in the center of the post. This hole will be approximately  $\frac{5}{16}$ " square and will provide a passage way for the appliance cord. The hole should be a little smaller at the top of the post so a  $\frac{1}{8}$ " pipe nipple will fit tightly into it.
2. Trim and plane the post as shown so that it is  $1 \frac{3}{4}$ " square at one end and 1" square at the other.

### D. Base

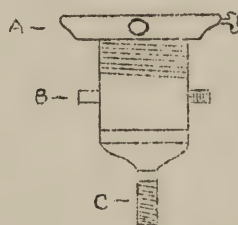
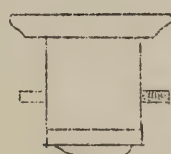




The base is made of two flat pieces each  $\frac{3}{4}$ " thick glued together.

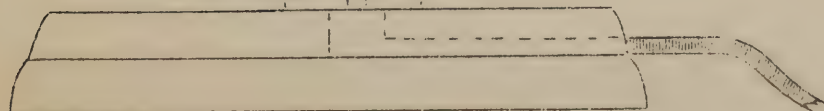
1. The lower piece should be 8" square and the upper piece  $7\frac{1}{2}$ " square or slightly smaller than the lower piece.
2. Round the corners to provide a smooth appearance.
3. Drill a 1" hole in the center of the upper piece through its thickness and cut a groove  $\frac{1}{4}$ " wide and  $\frac{1}{4}$ " deep from the edge of this hole to the edge of the piece. This will provide an entrance for the cord through the base.

#### E. Assembly

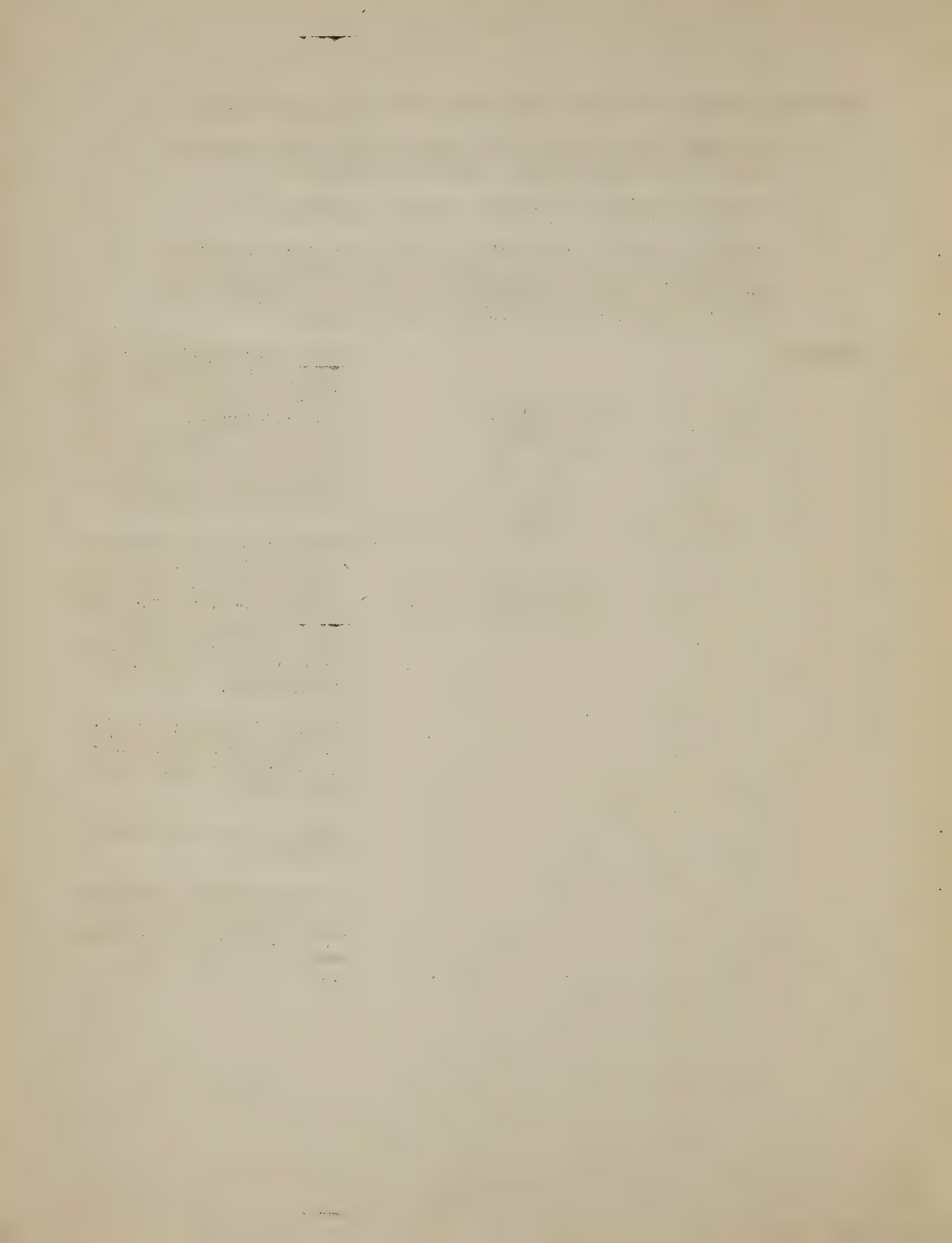


A - SHADE HOLDER  
B - PUSH SWITCH SOCKET  
C -  $\frac{1}{8}$ " PIPE NIPPLE

1. Thread the appliance cord through the base and through the post and join the post and base together. One or two No. 10, flat-head wood screws through the base into the post will secure the base and post together.
2. Thread the cord through the nipple and turn the nipple into the hole at the top of the post so that about  $\frac{3}{16}$ " of it extends above the post. The nipple should be glued in place to insure a solid union.
3. Attach the appliance cord to the socket connectors and screw the socket unto the nipple.
4. Attach a plug to the end of the cord.
5. Fit the diffusing bowl into the shade holder. Insert a 100-W bulb and place the shade on the lamp.







F. Shades



1. Shades must be made of a material heavy enough to prevent the diffusing bowl and bulb from showing through.
2. Shades must be deep enough to completely cover the bare bulb from the range of the eye.
3. Shades must be wide at the base and slightly tapering toward the top to allow a good spread of light.
4. Shades must have light linings to reflect the light downward. The outside may be of a color to harmonize with the furnishings of the room.



## GOOD LIGHTING

### Activity -- The Yard Light

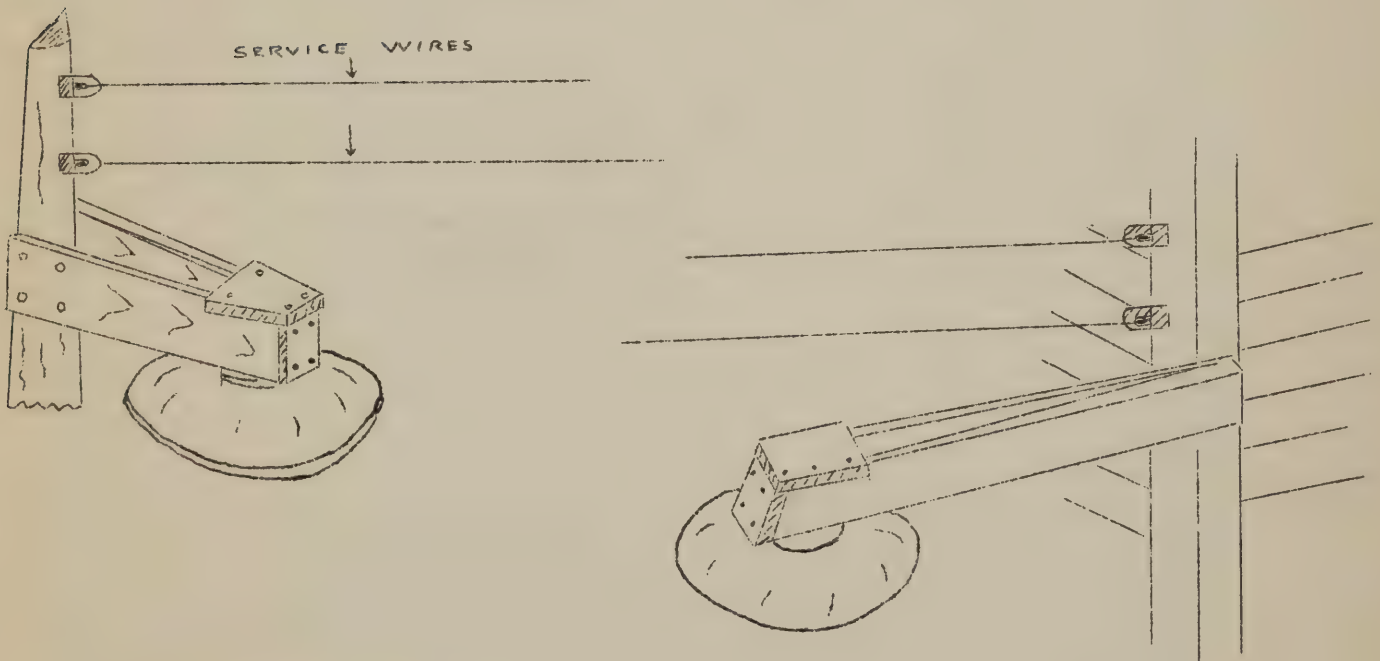
A yard light, when conveniently located, will be a profitable piece of equipment on the farm. In view of the many places where light is needed for getting about and doing chores on the farm, the inexpensive homemade light will be of much value. However, it is possible to purchase a completely assembled yard light.

#### A. Material Needed for the Yard Light.

- |   |                               |
|---|-------------------------------|
| 1 - 1" x 4" x 6' lumber                             | 1 - 150 - 200 watt light bulb |
| 1 - Metal pan 12" - 16" in diameter (non-corrosive) | 4 - 1" round head wood screws |
| 1 - Weatherproof socket                             | 6 ft. #12 weatherproof wire   |

#### B. The Location of the Light.

1. A centrally located pole, the corner of the barn, the garage or other farm buildings may serve as a desirable place to install a light.



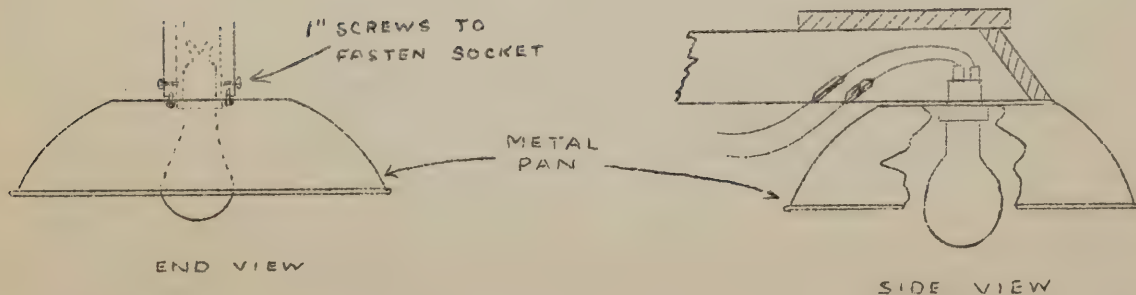
#### C. Assemble Yard Light.

1. Cut the 1" x 4" x 6' piece into 2 - 30" brackets as shown and use the remainder of the piece for blocks to enclose the socket on the top and the end of the brackets.





2. Cut a hole in the diameter of the weatherproof socket in the bottom of the pan.
3. Attach the pan to the brackets with 1" screws; space the brackets so the socket, when in place, fits snugly between them.
4. Secure the socket in place with 1" screws through the brackets. The ends of the screws should just pierce the socket covering.
5. Cut the 6' #12 weatherproof wire into 2 - 3' pieces and splice one to each of the socket leads. Be sure to tape the splice.
6. Nail the top and end pieces in place.
7. Mount the finished yard light securely to a pole or building.
8. Having first made sure the service wires carry no live current, connect the wire from the yard light to the service wire.



Note: The assembly here shown is modified from a design by the South Carolina Extension Service.



## WIRING FOR THE USE OF ELECTRICITY

Activity -- Finding Out Why Good House Wiring is Important

### A. What Do We Mean by "Good" Wiring?

1. Wiring is the "piping" through which electric current flows. Good Wiring means wiring which is safe, adequate and convenient. These three points are very important. Let's take them up one by one:

a. Safe Wiring -- is wiring of a high enough quality of materials and workmanship to guarantee safe service. Unless the farm and home wiring system conforms to the standard set by the National Electric Code, we cannot be sure that it is safe.

b. Adequate Wiring -- is wiring sufficient not only for present, but also for future needs. More particularly, it means:

A Large Enough Service Entrance

Wires of the Proper Size

Enough Outlets

(1) The Service Entrance -- A small entrance switch of only 30 amperes may take care of lights and household appliances other than a range or a water heater, but it will not let enough electricity flow through the wire to operate farm equipment using motors bigger than 1 horsepower. It costs money to tear out a 30-AMP switch and replace it with a 60-AMP switch when you find you need more power. It is cheaper to install the larger switch in the first place.

(2) Wires That Are Large Enough -- To carry electricity throughout the house, pairs of wires are run between the walls, and over ceilings. The size of these wires varies, depending on the appliances to be used. The smallest size allowed (for safety reasons) is #14. However, larger sizes, such as #12 or #10, will give us better use of electricity. Still larger wires are needed for heavier equipment, as a range or large motor.

(3) Enough Convenience Outlets -- in each room, so that we can use equipment that we now have, as well as what we'll get in the future. A good guide to follow is to have not less than two convenience outlets in each room.

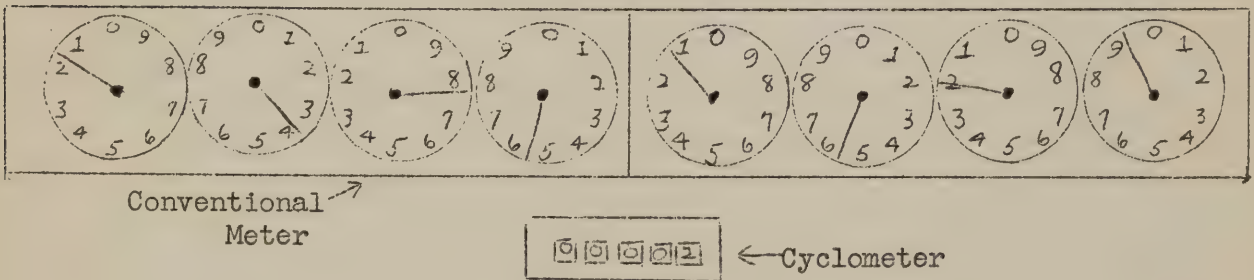




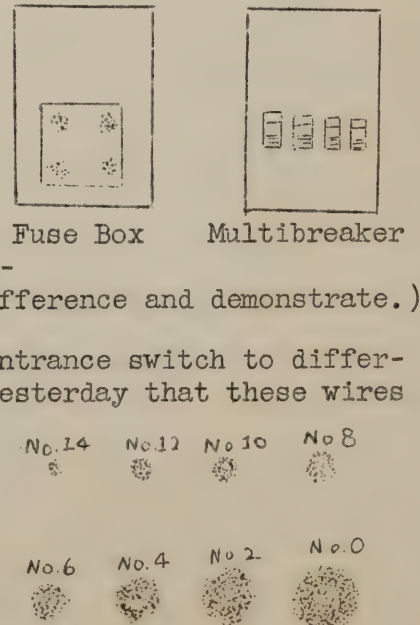
- c. Convenient Wiring -- means having outlets placed where you'll use electricity most often, and switches placed at doors that you go through most often. In the kitchen and on the back porch, it is best to place the wall outlets about 40 inches from the floor, as that will make them more convenient to use.

B. How Does Electricity Get from the Pole Line to a Room Outlet?

1. The current in the pole line is too powerful and dangerous to use in the house or on the farm. It is brought down to the right voltage by passing it through a transformer before it reaches the meter at or in the house.
2. Starting at the meter, let's make a trip over the path that electricity takes in the home. (Boys and girls will trace wiring system in club house.) As current is brought in from the electric lines to my house, it flows:
  - a. Through a watt-hour meter, which measures the amount of electricity that is used. Let's see if we can read such a meter:



- b. Through the entrance switch which disconnects the electric current throughout the house from the electric lines. This switch acts as a safety "valve" because it gives protection when we overload the wires or when something goes wrong. These "valves" are known as fuses or circuit breakers which automatically turn off the current. (Explain difference and demonstrate.)
- c. Through wires that are run from the entrance switch to different parts of the house. We learned yesterday that these wires were called "electric circuits."





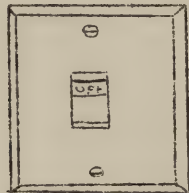
- d. To the outlets, which have been placed along the wires as openings where current is taken to give light, run motors and for every use of electricity.
- 3. There are different outlets for different purposes. They fall within four general types:
  - a. Light outlet -- where the lighting fixture is installed.



- b. Convenience outlet -- where appliances are connected.



- c. Switches -- turn the electricity on or off.



- d. Power outlet -- where heavy-duty appliances are connected.







## SMALL MOTORS

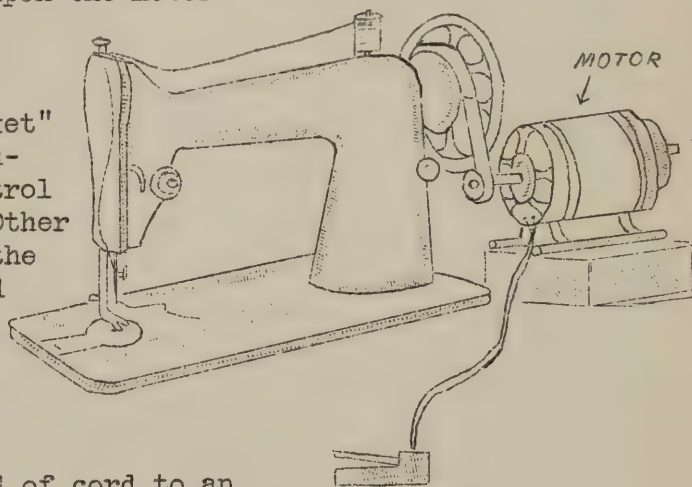
Activity -- Modernize the Sewing Machine by Making it Electric.

A. Naturally, it is of great interest to know that you need not wait until your present sewing machine is worn out to enjoy the advantages of electric power.

1. Did you realize that a garment may be made in about  $\frac{1}{3}$  less time with the electric machine? In addition, much energy is saved and an improved quality of sewing may be expected.
2. A small motor especially equipped for the purpose of modernizing sewing machines can be attached with very little trouble and expense.

### B. Converting a Sewing Machine

1. To change a treadle type machine into an electrically operated one depends upon the motor purchased.
2. Ordinarily, the motor is equipped in a "packet" with a foot speed regulator which gives control of the sewing speed. Other equipment needed for the conversion is included in the packet.



### C. Operating the Electric Machine

1. Attach the plug at end of cord to an electrical outlet; gradually press the rheostat control (foot feed) until the machine starts.
2. If the machine does not start readily on heavy goods, take hold of the disc hand wheel and push it away from you; the motor will then keep the machine running.
3. Establish a steady speed for smooth, even stitching.
4. When removing material from the machine, always be sure that the needle is at its highest point. Do not operate the machine without cloth under the presser foot.



D. Costs

1. It costs very little to operate an electric machine. The average family will seldom use more than 1 KWH per month. At an average rate per KWH, the cost would be less than 5¢ per month to do the family sewing.
2. The motor and equipment is not expensive, usually ranging in price from \$7.00 to \$20.00.

E. Care

1. Oil the motor before using with a light oil. Oil at regular intervals following the directions which come in the packet.

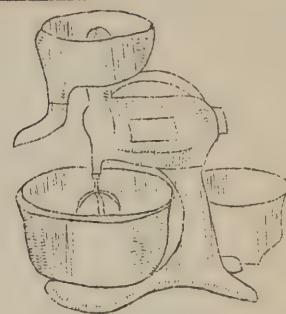




## EXTRA PAIRS OF HANDS IN THE KITCHEN -- THE ELECTRIC MIXER

### Activity -- Electric Mixer

- A. Mixer machines are motor-driven and use electricity for power.



#### 1. Things I'd Look for in An Electric Mixer.

- a. One that is sturdily built to do an all-around mixing job in the kitchen. Some mixers have motors so small that they will do only light jobs such as beating eggs and cream and making mayonnaise.
- b. A mixer powerful enough to mix doughs and batters, as well as light mixing jobs, would cost me a little over \$20.00 retail. For this amount of money I would get, in addition to the mixer and its stand, two mixing bowls, a set of beaters, a juice extractor, and a mayonnaise maker.
- c. The label U. L. (meaning approved by Underwriters' Laboratories) for protection.

#### 2. How Can I Use My Mixer to Lighten My Work in the Kitchen?

- a. To mix all of my breads, cakes, cookies and puddings.
- b. To beat eggs, whip cream, make mayonnaise and mash potatoes.
- c. To help me make butter cake frosting, candy, ice cream and other desserts.
- d. Electric mixers are so much faster and more powerful than mixing by hand that the right speed and mixing time should be used to get the best results.
- e. Here's an Old-Fashioned Recipe made in New-Fashioned Style.

#### OLD-FASHIONED POUND CAKE

2 c. butter	$\frac{1}{4}$ t. salt
2 c. sugar	1 t. vanilla flavoring
4 c. flour	or a pinch of mace
10 eggs	



f. Assemble Materials.

1. Locate the mixer on a convenient working surface with other utensils needed for making a cake. Plug the mixer cord into a convenience outlet.
  2. Measure all ingredients accurately.
  3. Place the soft butter in the large bowl; lower the beaters into the bowl.
  4. Set the switch at HIGH speed until butter is creamy. Add the sugar gradually, leaving switch at HIGH speed. Add the eggs, unbeaten, one at a time, beating about  $\frac{1}{2}$  minute for each at HIGH speed. Scrape the sides of the bowl occasionally. Set the speed at MEDIUM LOW, and then add the dry ingredients. After all of the ingredients have been added, beat for about 1 minute. The mixture should be smooth, but avoid over-beating. Pour cake in greased pan. Bake in preheated oven at 325° F. for  $1\frac{1}{2}$  hours.
- g. Many other uses of the mixer are possible through the use of added attachments, such as meat grinder, vegetable shredder, potato peeler and ice-cream freezer. These attachments mean additional cost.

3. How I'd Take Care of My Mixer.

- a. Read the instruction book.
- b. Oil the motor at regular times -- 2 drops of light oil per month at the suggested places.
- c. Remove the beaters and wash in warm soapy water, rinse in clear water and dry.
- d. Wash the bowls in warm, soapy water; rinse in clear water and dry.
- e. Wipe off the motor and stand each time after using with a damp cloth.
- f. It is wise to keep the machine covered when not in use.





## SMALL ELECTRIC MOTORS

### Activity -- Making A Small Motor Portable

It is true that much of the hard hand work of the farm may be replaced by the use of a small motor.

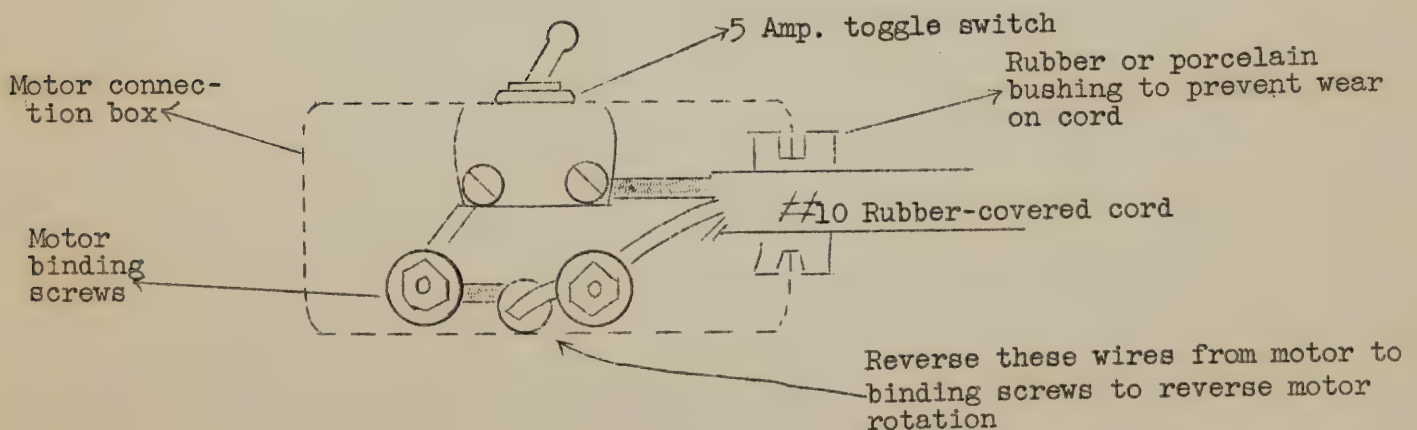
#### A. The Motor is an Inexpensive Way of Doing Work

1. This modern method of doing work costs very little, as the small motor is one of the less expensive appliances. It may be purchased for \$5.00 - \$25.00.
2. This size motor does not require a special type wiring. It can be operated effectively and safely when attached to an appliance outlet.
3. The cost of operating the small motor is low. Five cents, or just one nickel, will separate 2000 pounds of milk, turn a grindstone for 3 hours, shear 75 sheep, grind over 100 pounds of grain, mix 5000 pounds of feed or shell 25 bushels of corn.

The motor will do many other jobs - turn the ice-cream freezer, the fruit grader, a lathe and a drill press.

#### B. Making the Motor Portable

1. One motor can be used for all of these purposes; therefore, it is wise to make it possible. The convenient handle makes it possible to carry it from job to job.



Typical 1/4-hp Motor Connection



C. Materials Needed for the Portable Motor

Cost  
Local Price

- 4 - 5/16" x 2" stove bolts .....
- 4 - Plain washers .....
- 4 - Lock washers .....
- 2 - 18" #10 rubber-covered solid wire .....
- 2 - 12" piece 3/4" galvanized iron pipe .....
- 10 - 3/4" pipe straps or 10 pair of 12-inch 1" x 1" .  
wooden strips .....
- 1 - 10' rubber-covered extension cord .....
- 1 - Rubber-covered attachment plug .....
- 1 - 5" four-step V. Pulley .....

D. Assemble Material

1. Fasten handle

- a. Twist the two wires together tightly in the center for a distance of five or six inches.
- b. Slip short piece of hose over the twisted part.
- c. Bare and flatten ends of wire.
- d. Attach to the two top frame bolts of the motor.

2. Bolting rails to motor

- a. The rails consist of two pieces of 3/4" iron pipe bolted to the base of the motor. Each rail should be long enough to extend from the outer edge of the pulley at one end to the outer side of motor on the other.
- b. Fasten the 3/4" iron pipe to the base of motor with the stove bolts.
- c. Counter sink bolts in pipes.
- d. Ream or file the holes to provide for countersinking the bolts.
- e. To provide a smooth surface on the bottom of the pipe rail, fringe or file the heads of the bolts after they are in place so they are even with the rounded surface of the pipes.





- f. If the rails are much shorter than this, the motor will have a tendency to twist.

E. The Extension Cord

1. The name-plate usually shows the correct method of connecting the extension cord to the motor.
2. If instructions are not included, follow the diagram for making the cord connection.

F. Completed Motor

1. With the securely attached handle and rails the motor may be easily moved wherever needed.
2. A four-step V. pulley attached to the motor is necessary for operating different machines.

Note: The assembly here shown is modified from a design by Mr. J. L. Calhoun, Extension Rural Electrification Specialist for College of Agriculture of the University of Georgia.



## SMALL MOTORS CAN DO ALL KINDS OF JOBS

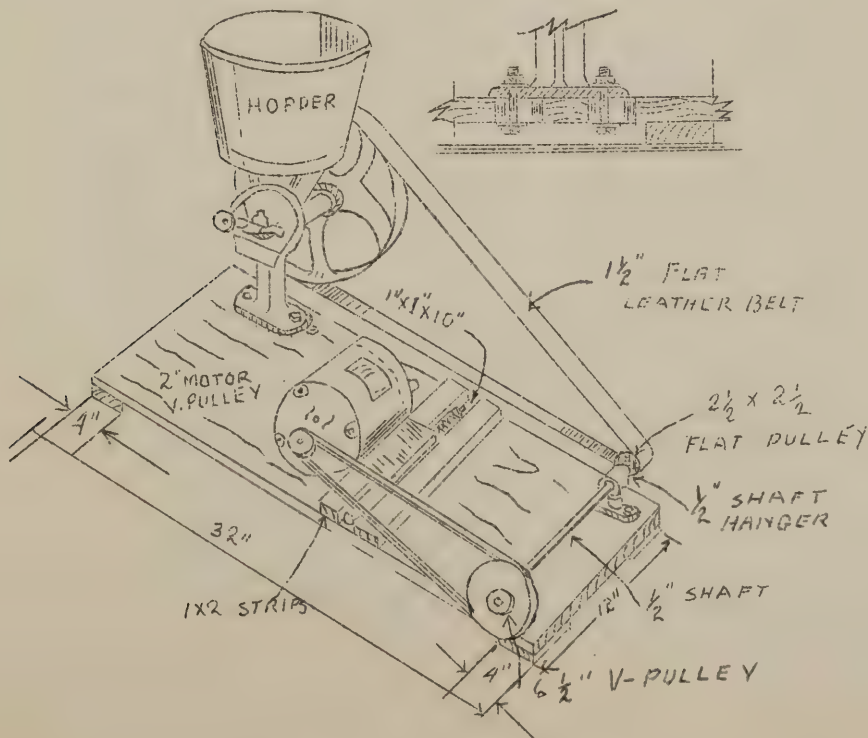
### Activity -- Operating Small Flour and Feed Grinder

#### A. Introduction.

In addition to running a butter churn, a grindstone, a saw, a cream separator, a corn sheller and other small machines, a small motor can also furnish power for grinding whole-wheat flour, corn meal, and grits. Of course, you will need to have a little flour mill or feed grinder to which the motor can be attached.

#### B. How Whole-Wheat Flour Helps National Defense.

1. We have learned in our club work that vitamins and minerals are essential to good health. When all parts of the grain are left in the flour, as in whole-wheat flour, we get far more of these essentials to good health than from white flour. According to nutrition experts, even "enriched" flour does not come up to whole-wheat flour.
2. To have a strong nation we need strong and healthy people. The use of whole-wheat products will help to make our nation strong. It is particularly important for boys and girls because it helps their bodies to grow well and gives them a lot of energy.
3. Using whole-wheat flour means conserving food, because all parts of the grain are used, and nothing is thrown away.







C. How Milling and Baking at Home Helps Farm Families.

1. If you raise your own wheat, or even if you buy the wheat, you can get a lot more flour for your money by milling it at home than by buying it at the store.
2. We have learned in our club work that baking bread at home saves on the grocery bill.

D. Getting Ready for Home Milling.

1. There are different kinds and sizes of small grinders. Some can grind fast, others not so fast. Some can grind fine, others only coarse. The little mill shown here is a power burr mill that will do a good job with a 1/4-horsepower (hp.) motor when rigged up with the proper speed-reducing equipment.
2. This mill grinds the grain between two revolving steel burrs. An adjusting screw regulates the space between the burrs for coarse or fine grinding. The mill can be clamped to a table or workbench every time it is used, or it can be permanently screwed to a wooden base.
3. Any small motor of not less than 1/4-hp. can drive the mill.
4. Connecting the motor pulley directly to the mill pulley would make the mill run much too fast, do a poor grinding job and wear the burrs down too quickly. Therefore, an arrangement is needed for reducing the speed.
5. A good speed for the pulley on the mill is about 120 revolutions per minute (R.P.M.). To get down to that speed from the high speed of the motor, we can do one of two things.
  - a. We can put a large enough pulley on the motor so that the belt moves at the right speed. In that case, all we need is one belt from the mill to the motor. If the motor is portable, it is simple to fasten it to the table or bench at the right distance so that it will keep the belt tight.
  - b. Another plan is to connect the motor with a jack shaft, and the jack shaft with the mill pulley. This requires two belts, and also



two speed-reducing pulleys of different sizes on the jack shaft. If this assembly is used, it is best to fasten the mill, the jack shaft and the motor all on one board. How that can be done and what size pulleys and belts are needed is shown above in the diagram, which is taken from the leaflet, "Milling at Home for Better Farm Living," published by Clemson College, South Carolina. The total cost of this assembly, including also the mill and motor was around twenty dollars.

E. Grinding the Flour.

1. To get good and clean flour, you must make sure that the grain itself is good, dry and clean.
2. If we want to get real fine flour, we can put the first grinding through the mill again.
3. We must not let the mill get too hot, as that may change the flavor of the flour and lessen its keeping qualities. Heating up can be caused either by running the mill too fast or too long at a time. Also the closer the burrs are set, the quicker the mill will heat up.

F. Trying Out the Home-Milled Flour.

By following these recipes, you will have delicious bread and cookies of a good quality from the whole wheat flour milled on the small electric mill.

Breads like mother used to bake:

WHOLE-WHEAT BREAD

2½ c. liquid	3 t. salt
1 to 2 cakes compressed yeast	3 T. fat
	7 to 8 c. whole-wheat flour
4 T. brown sugar or molasses	

If milk is used, scald, and allow ½ cup to cool to lukewarm. Add yeast and allow to dissolve. To the remainder of the milk or liquid add the sweetening, salt and fat. Let cool. When mixture is lukewarm add to it enough unsifted whole-wheat flour to make a batter and beat smooth.





Add softened yeast and beat. Add enough more whole-wheat flour to handle. Knead well, using just enough flour to make a smooth dough, keeping it moderately soft. If an electric mixer is used, it kneads as it mixes. Let rise in greased bowl until barely doubled. Turn dough onto lightly floured board and divide in 3 equal portions. Shape into loaves and place in greased baking pans, which should be about half full. Let rise to top of pans. Bake at 400° F. for 1 hour.

#### WHOLE-WHEAT REFRIGERATOR COOKIES

1 c. melted butter	1½ t. salt
5½ c. whole-wheat flour (unsifted)	2 eggs
1 c. brown sugar (packed)	1 t. cinnamon
1 c. white sugar	½ c. chopped nuts
	1 t. soda

Mix butter and sugar, add egg. Add flour and other dry ingredients. Add nuts. Mix well; make into small rolls about 2 inches in diameter, and 8 inches long. Wrap in wax paper. Store in refrigerator until hard. Slice very thin. Bake in oven at 425° F. for 8 to 10 minutes.



## GARDEN WATERING

### Activity -- Make-It-Yourself Garden-Watering Unit

A good garden will provide the family with most of its vegetables for the year.

#### A. Advantages of Garden Watering:

1. Will insure a plentiful supply of vegetables during dry seasons.
2. It will increase the quantity of vegetables grown in a given area.
3. You can make money by using a "make it yourself" Garden Watering Assembly.

#### B. Bill of Material:

- 1 - revolving sprinkler \*    1 - 3/4" x 3/4" x 1/2" tee
- 1 - 3/4" to 1/2" reducer    1 - 12" length of 1/2" iron pipe
- 1 - 36" length of 3/4" iron pipe (depends on the plants to be watered)    1 - 1/2" nipple
- 1 - 3/4" to 1/2" bushing    1 - 1/2" brass hose spud

\* The nozzle size depends on your pump capacity and on the number of sprinkler units you want to operate at the same time. Consult the table below. It is calculated on the basis of 20-25 pounds water pressure at the sprinkler head. Each unit will effectively water an area about 50 feet in diameter. Spacing of sprinkler settings should not exceed 50 feet.

Pump Capacity Gals/Hr	No. Units Operating At One Time	Size Nozzles	Hours Re- quired to Apply 1" Water
200	1	5/32"	7-1/2
275	1	3/16"	5-1/2
	2	1/8"	12
400	1	7/32"	4-1/2
	2	5/32"	7-1/2
	3	1/8"	12



C. Assemble Materials:

1. Cut the 3/4" pipe to length and thread it.
2. Thread the 1/2" pipe in one end and crimp the other end; drive a wooden plug in the threaded end.
3. Assemble the pipe and pipe fittings with the sprinkler as shown in diagram.

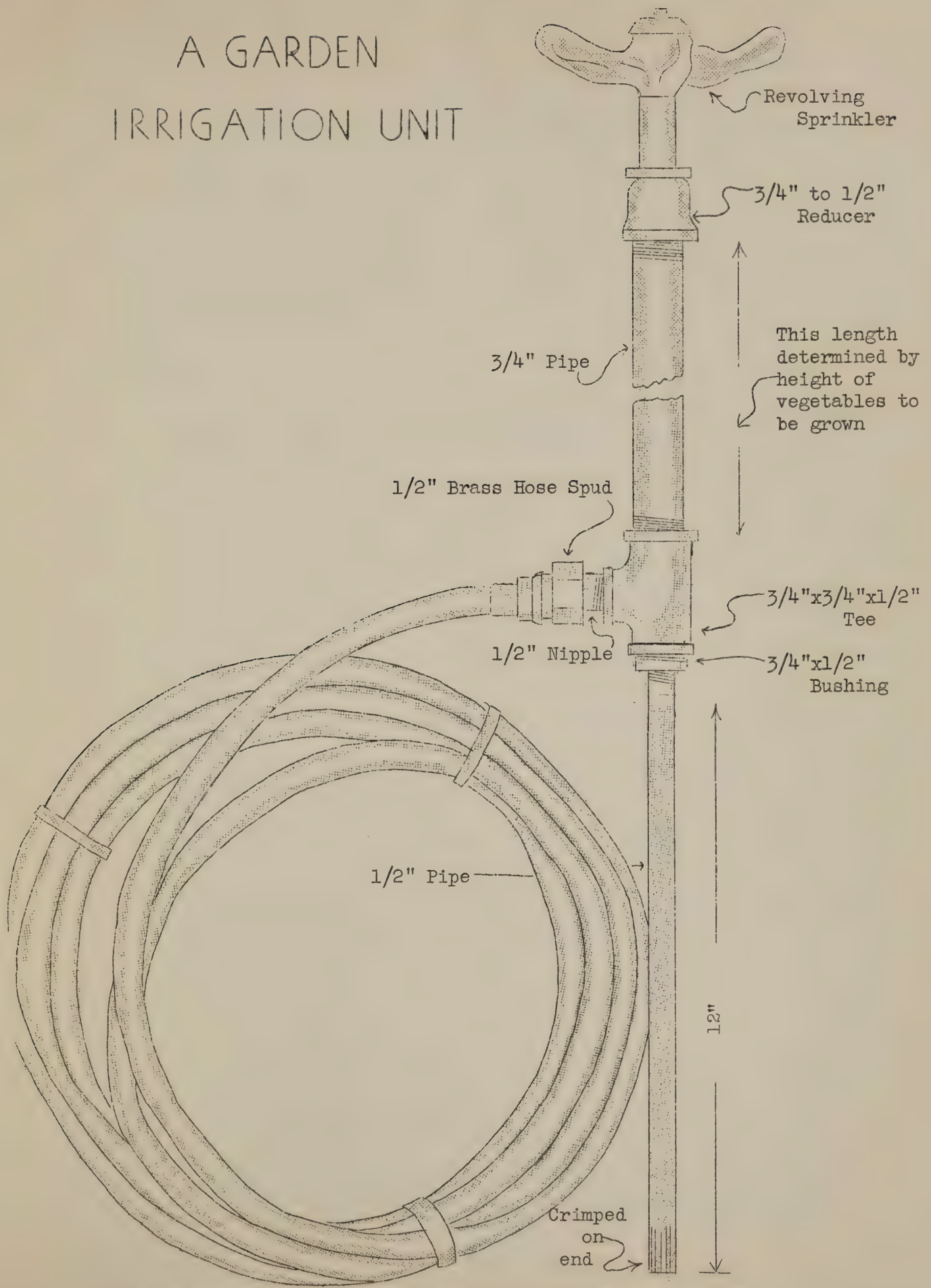
D. How to Water a Garden:

1. Water may be applied either by flooding or sprinkling, depending on the topography and kind of soil.
2. This low-cost sprinkler assembly is probably the most adaptable to use with the home electric water system.
3. One inch of water applied once every week is usually sufficient for plants for one watering period.
4. Turn the sprinkler on before bedtime and turn it off in the morning; 7 - 8 hrs. time will water the garden without interfering with other uses of the water system.
5. The Farm or Home Demonstration Agent will help you in planning the Home Garden.





# A GARDEN IRRIGATION UNIT

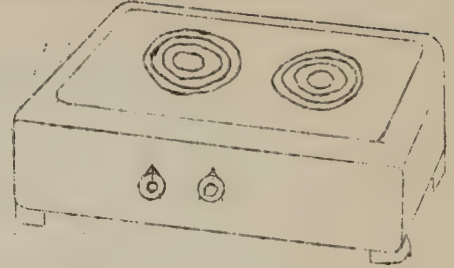




## FOR COOLER KITCHENS -- FOR BIG OR LITTLE JOBS -- THE HOTPLATE

### Activity -- The Hotplate

- A. A small, but willing worker, the hotplate is the roaster's partner. On hot days this "team" will take over the cooking job without fuss or mess, and will keep the kitchen clean and cool.



### B. Things I'd Look for in a Hotplate

1. One that has two heating units so that I could use it for more cooking jobs; and for speedy cooking, one of these units would have a wattage of at least 1,000 watts. These units may be either of two types.
  - a. Well-built open coils, or
  - b. Coils encased in metal (called enclosed units).
2. One that has a sturdy frame, that's durable and easy to clean.
3. One with switches that give three heats, "High," "Medium" and "Low."

### C. How Can I Use My Hotplate to Help Me in My Cooking and Canning?

1. The controlled heat of the hotplate will save time and work and will keep important vitamins and minerals in foods.
2. Vegetables are "steamed" in a very small amount of water, rather than "boiled," which means better food.
3. Whole meals, called "skillet" or "one dish" meals can be cooked on the hotplate to save time, work, and also electric current. Here's one that really sticks to the ribs:

#### American Chop Suey

1 lb. ground beef or finely	3/4 c. rice
chopped cooked meat	1 c. cut celery (may
2 T fat	be omitted)
1 large onion, chopped	2 c. canned tomatoes
1 green pepper, chopped	1 t. salt

Brown the steak in the fat over HIGH heat; add remaining ingredients, and cover tightly. Cook on HIGH heat until steaming. Turn switch OFF and cook on stored or "free" heat for 45 minutes.





4. Canning gets to be fun when the hotplate's on the job. Either with the pressure cooker or water bath, the right amount of heat is always there.

D. What's the Best Care to Give My Hotplate?

1. Always plug the hotplate into a wall (convenience) outlet; never use it from a ceiling drop cord.
2. Heating units with open coils are cleaned by allowing any spilled food to burn itself to a char, then brushing char off with a soft brush. Never use a knife to clean off food that is spilled on coils. To whiten these open units, turn a tin pie pan upside-down over the unit and turn the switch to "High" for 10 minutes. The enclosed units are cleaned by wiping off with a damp cloth, then rubbing with a dry cloth.
3. Clean the edge of the heating units and the rest of the hotplate by wiping off with a damp cloth dipped in soapy water; rinse with damp cloth and dry well.
4. Keep the cord clean and dry. Don't spill water or food on it. Hang the cord over a hook instead of winding or twisting it.

E. What Would I Pay for a Good Hotplate?

1. Enclosed heating units make a hotplate cost more than one with open units, but they last longer, are easier to clean, and save on electricity.
2. A good hotplate with two heating units of open coils can be bought for as little as \$7.50; a good hotplate with two enclosed heating units for \$16.95.



## THE JACK-OF-ALL-COOKING JOBS

### Activity -- The Electric Roaster

- A. The modern, electric roaster is such a work-saver that it's as good as an extra pair of hands in the kitchen. It bakes, broils, roasts and steams and helps with the canning, too. It turns out perfect foods because it cooks them automatically, without any fuss and watching, without any dirt and smoke or heating up the kitchen.



B. "WHAT'S TO LEARN ABOUT A ROASTER?"

1. What Kind Would You SELECT?

- A roaster with automatic heat control.
- One that is approved for safety by the National Board of Fire Underwriters.
- One that is sturdily made, and is insulated well to keep the heat in.
- A rectangular shape because it will hold more food than an oval shape.
- One that has a broiler that is easy to use.

2. How Would You USE the Roaster?

- To cook a whole meal for as many as eight people.

Here's an easy and time-saving one -- one just right for home-canned foods:

#### Scalloped Meat

Tomato & Lima Bean  
Casserole

Carrot Pudding

#### Recipes:

##### Scalloped Meat

$2\frac{1}{2}$  c. diced cook meat  
 $2\frac{1}{2}$  c. leftover mashed  
potatoes

1 small onion, cut  
fine  
buttered bread crumbs



Place a layer of diced cooked meat (can use any canned meat) in the bottom of buttered roaster dish. Cover with a layer of mashed potatoes. Over this half of the onion, add a layer of bread crumbs. Repeat this until the dish is filled, having for the top layer buttered crumbs. Pour over all 1 cup stock or gravy. Bake uncovered.

Tomato and Lima Bean Casserole --

Drain the liquid from a can of lima beans (save the liquid for using in soups) and combine the beans with a can of tomatoes. Add a little butter and seasoning, then mix. Place in buttered roaster dish. Cover.

Baked Carrot Pudding --

$\frac{1}{2}$ c. butter and lard, mixed	1 t. baking powder
$\frac{1}{2}$ c. brown sugar or molasses	$\frac{1}{2}$ t. salt
1 egg	$\frac{1}{2}$ t. nutmeg
1 c. grated raw carrots	$\frac{1}{2}$ t. cinnamon
$\frac{1}{2}$ t. soda dissolved in 1 T. hot water	$\frac{1}{2}$ c. seedless raisins
$1\frac{1}{4}$ c. flour	2 t. candied lemon peel

Cream butter and sugar. Add egg and beat well. Add carrots and soda dissolved in hot water. Sift dry ingredients together and add to first mixture. Stir in lemon peel and raisins. Pour in buttered roaster dish, leave uncovered.

Place all three dishes in roaster which have preheated to 400° F.; then leave the kitchen and let the meal cook for one hour.

- b. Use your roaster, too, for all the baking. Always "pre-heat" the roaster to the temperature you want before starting the baking.
- c. Roast or bake all meats in the roaster. With the even temperature that the automatic control gives, there's no cooking away of meats.
- d. Broil such meats as steaks, chops and chicken to a juicy doneness.
- e. Can any fruits and acid vegetables (like tomatoes and rhubarb), and make all your jams, preserves and conserves in the roaster.





- f. And last, but not least, -- use it to free you from hours in the kitchen -- let it do the job while you're busy at something else.

3. How Would You Take CARE of Your Roaster?

- a. Wash the inside pan and dishes as you would any utensil.
- b. Wipe the outside with a damp cloth and polish with a dry one. Never put the roaster itself in water; this would ruin the heating element.
- c. Always plug your roaster into a regular wall outlet -- never use it on a ceiling drop cord.

4. What's the Difference in a Roaster and a Range?

- a. An electric range will do all the cooking for the family, while the roaster is used in addition to the regular cook stove, to give you better cooking -- and a "break" in hot weather.
- b. Because the roaster is smaller than the range, it doesn't take any extra wiring like the range does -- and, too, it's cheaper to use.



## ELECTRIC CHICK BROODER

Activity -- To make an Electric Brooder

A. Advantages of Electric Brooders:

1. Raise more and better chicks.
2. Reduce labor and care.
3. Decrease fire hazard.
4. Cost less to operate.

B. Successful brooding involves other factors than equipment:

1. Get good, vigorous chicks ~~from disease-free stock~~.
2. Properly feed chicks with suitable rations.
3. Have properly designed equipment, including brooder and house.
4. Proper management and care of equipment and chicks, with the above factors properly taken care of, the brooder described below will render excellent service.
5. The Home Demonstration or Farm Agent will supply further information on brooding chicks.

BILL OF MATERIALS

LOCAL PRICE COST

C. Obtain Materials

- |  |       |
|--|-------|
| 1 - sheet 4' x 8' x 3/8" plywood .....                 |       |
| 1 - 1" x 1" x 16' piece .....                          |       |
| 1 - 1" x 2" x 6' piece .....                           |       |
| 2 - porcelain sockets .....                            |       |
| 2 - 150-watt, 115-volt projector spot or flood lamps . |       |
| 1 - rubber-covered appliance cord with plug - 15' .... | _____ |

TOTAL

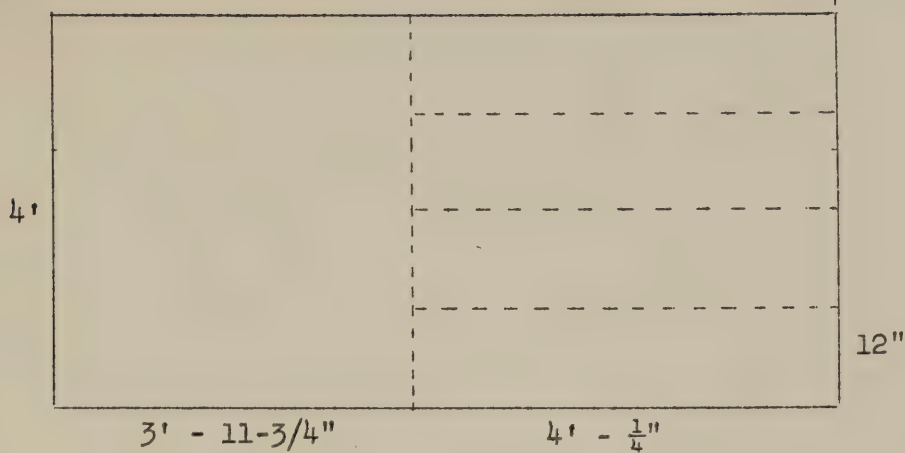
D. Cut Stock Materials to Size

1. Cut 4' x 8' x 3/8" plywood sheet into
  - a. 4' x 3' - 11-3/4" piece for brooder top
  - b. 4 - 12" x 4'-3/8" pieces for brooder sides
2. Cut four 16" legs from 1" x 2" x 6' piece
3. Cut four cleats from 16' x 1' x 1" pieces





D. Plan

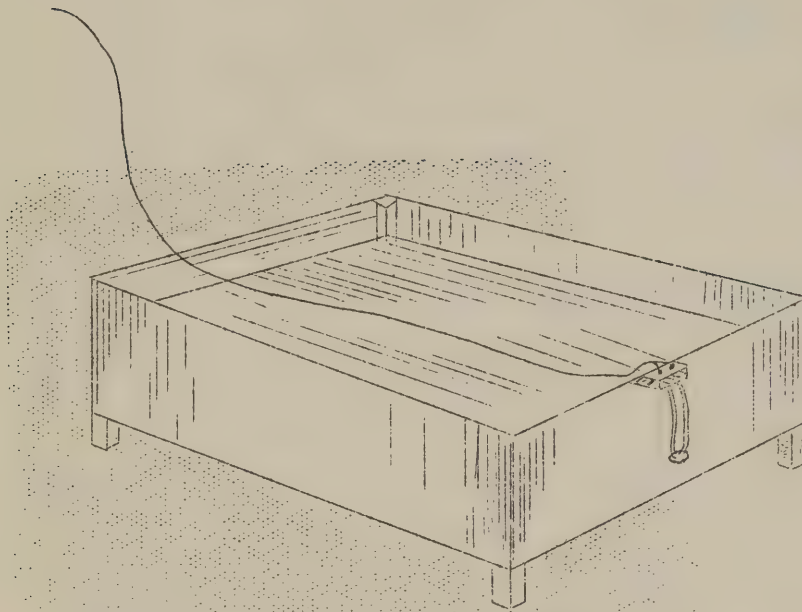


E. Assemble Materials for Brooder

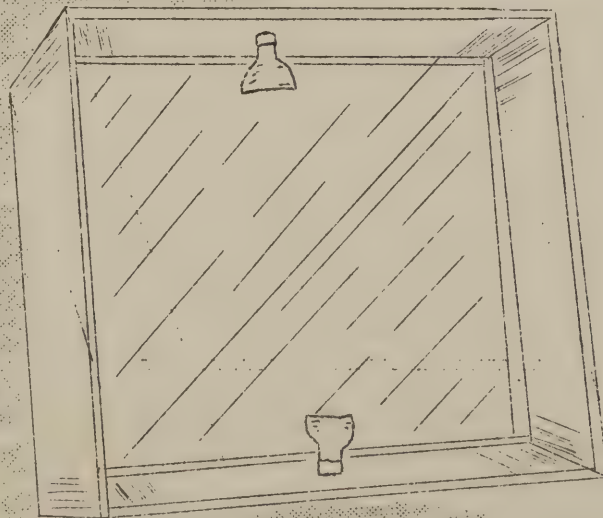
1. Use 6D finishing nails
2. Nail 12" x 4' - 3/8" sides to brooder top so that 4" of each side extends above top. The sides should lap at each corner.
3. Nail 1" x 2" x 16" legs in each corner; they will extend approximately 8" below sides.
4. Fit and nail 1" x 1" cleats, cut from 16' x 1" x 1" piece, along bottom side of top extending from leg to leg.
5. Mount porcelain sockets in opposite sides about 3" above bottom edge of sides.
6. Connect sockets to appliance cord.
7. Refer to detail diagram for further instructions.

Note: The assembly here shown is modified from a design by Ohio Agricultural Experiment Station.





Outside View of Brooder



Inside View of Brooder

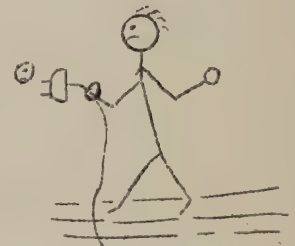
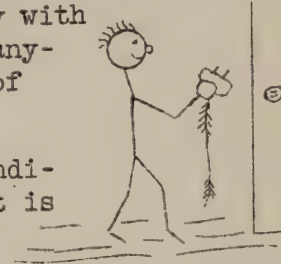


## IT'S SMART TO PRACTICE SAFETY FIRST WITH ELECTRICITY

### Activity -- Learning to Use Electricity Safely

#### A. Did You Know that Electricity is One of the Safest Tools with which We Work, Provided We Follow a Few Simple Rules on Safety?

1. Have all wiring, when installed, inspected by an authorized inspector to be certain that it meets safety standards.
2. Always remember to replace a blown fuse only with a fuse -- trouble may be caused if you use anything else. The fuse is the safety "valve" of your electric system.
3. Use only approved cords that are in good condition -- these are safe cords. Any cord that is **frayed, cracked, or broken at the ends**, is not safe.
4. Always remember when you disconnect an appliance cord, disconnect it at the outlet -- never at the appliance. And be sure to take hold of the plug, not of the cord, when pulling. This will save you from a possible shock as well as save the appliance and cord from ruin.
5. Never run extension cords under rugs, over nails or around pipes.
6. Remember that water is a rapid conductor of electricity. So keep in mind that any material, when wet, can cause a painful shock if it comes in contact with electric current.



- a. Never handle connected electrical appliance, such as a toaster or iron, when your hands are wet.
- b. Never turn on an electric light or an electric heater while taking a bath.
- c. Never stand on a wet floor when using a washing machine -- stand on a dry spot, a dry rubber mat, or a dry, wooden platform.

#### B. Something "Special"

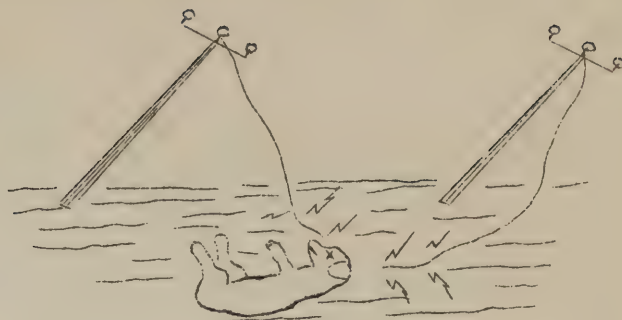
1. Do not touch any exposed wires unless you are sure that the current is turned off.



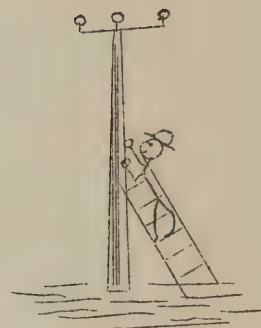




2. Never touch a live wire that has fallen to the ground. If you see anything wrong along the electric line, call the office of your electric system.

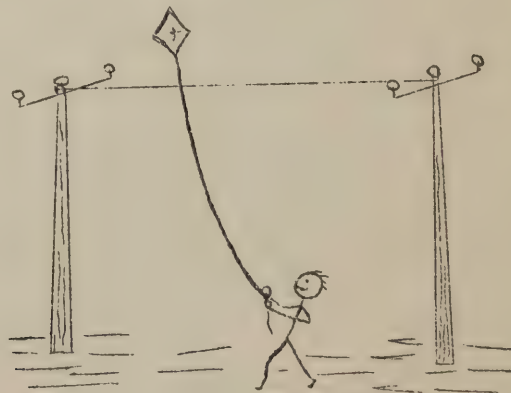


3. Never climb a pole that carries electric lines.



C. Make the Most of Safety Rules when Playing Out of Doors.

1. It is dangerous to allow a kite string or wire to touch an electric line. Should your kite blow toward a wire, let go of the string -- even though it means the loss of the kite.





## SUGGESTED PROGRAM OF WORK TO THE INSTRUCTOR

### First Day or Period -- Introduction

1. Have the demonstration equipment set up and check for the first day or hour's work. (The bicycle completely installed and ready for use as well as any other equipment to be used the first period.)
2. After the introductory remarks, outline the program for the week. Give out the summary sheets and explain their use.
3. Develop the story of cooperative action (hand out booklets). "The Guide for Members of REA Cooperatives" should be carefully read by the instructor before starting the discussion on cooperative action. Suggest the forming of committees to assist in assembling the demonstration.

Clearly define the committees by having each member write his own name under the activity he desires to work with.

4. Introduce the subject of electricity and electrical terms, demonstrating each point as fully as possible with the bicycle device. If the bicycle is not available, use pictures and charts.
5. Summarize the work by using questions -- type of "Information Please."

### Second Day or Period -- Good Lighting and Wiring for the Farmstead.

1. Have all materials set up for the lighting demonstration. Have materials assembled for making the yard light and study lamp.
2. Give a demonstration on good lighting in the home and on the farm. Briefly outline the uses of light in the home and on the farm. (Use chart and actual materials such as adapter and lamps.)
  - a. During the lighting demonstration, have the designated committee on lighting assist by operating the light meter.
  - b. Introduce the project for making the study lamp or the yard light. Give out directions for making the lamp or yard light.

### Third Day or Period -- Making the Lamps.

1. Should time be limited on the second day, it may be necessary to make the lamp during this period.







2. Upon the completion of the lamp or the yard light, introduce wiring as there will be a definite need for a convenience outlet and an outlet for the yard light.
3. Discuss the subject of adequate wiring for the farmstead, blocking out a suggested plan for wiring.
4. Have wiring materials and charts for demonstration use.
5. Emphasize the reasons why adequate wiring is necessary.
6. Be certain to call attention to the National Electric Code as the standard for wiring installation.

Fourth Day or Period -- Small Motors and Brooders.

1. Introduce the use of motors on the farm - demonstrate the operation of the motor by having it attached to a mill or other appliance, sewing-machine motor and mixer motor.
2. Demonstrate the method for making the motor portable.
3. Hand out direction sheets for making the motor portable.
4. Demonstrate the use of the household motor. Use the mixer by making a cake.
5. Demonstrate the making of the brooder.

Fifth Day or Period -- Food Conservation with the Use of Electricity - Demonstration.

1. Have all materials for complete demonstration set up. The demonstration teams should assist - garden-watering unit, hot plate, roaster, small mill.
2. Give demonstration for making garden-watering unit, followed by roaster (complete meal); hot plate (canning); mill to grind wheat. (Bake cookies of whole-wheat flour ground in roaster.)
3. Introduce - points to observe on safety - illustrate by charts.
4. Collect the summary sheets.
5. Summarize the work by pointing out the important factors to remember and the possibilities for carrying out the work given during this week.

